

What is claimed is:

Sub AP 1. A closure for maintaining pressure against a seal affixed to a container lip as a sealed container is exposed to relatively high temperature and pressure conditions,

5 said closure comprising:

a. a cap, having a top with an interior surface and a skirt depending from the top and defining a skirt interior surface, and having at least one thread affixed to the interior skirt surface in a spiral; and

10 b. a liner, proportioned to fit firmly within said cap and abutting the top interior surface thereof, said liner defining a resting thickness at ambient temperature and pressure conditions, and said liner being made from a material capable of being compressed to a thickness less than the resting thickness and being capable of recovering to a recovery thickness sufficient to allow said liner to maintain a positive pressure against said cap and against said seal when said closure is affixed to said container.

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2. The closure of claim 1 wherein said liner is made from a material having a melting point greater than about 265°F and a shore A hardness value of about 70.

20 3. The closure of claim 2 wherein said liner is made from a material selected from the group consisting of a silicone-based material, urethane, latex, rubber, thermoplastic elastomers, thermoset elastomers or a combination thereof.

4. The closure of claim 1 further comprising at least one layer of bonding material between said liner and said top interior surface.

5. The closure of claim 1 further comprising an essentially circular tamper-evident band depending from the skirt.

6. The closure of claim 5 wherein said tamper-evident band includes a break-away section and a means for positively engaging the collar.

7. The closure of claim 6 wherein said collar-engaging means are flexible finger projections.

8. The closure of claim 6 wherein said collar-engaging means is a continuous bead secured to said skirt interior surface.

9. The closure of claim 1 wherein said cap includes at least one slit extending a predetermined length from the top to the skirt.

10. A closure for use with a sealed container having a peelable seal wherein the sealed container is sterilized using a retort process, said closure comprising:

a. a cap, having a top with an interior surface and a skirt depending from the top and defining a skirt interior surface;

b. at least one thread affixed to the skirt interior surface and circumscribing the skirt in a spiral such that a thread receiving groove is formed, said thread having an upper edge wherein an angle θ is defined between the upper edge and a horizontal plane, and the angle θ is less than about 45° ; and

5 c. a liner, proportioned to fit firmly within said cap and abutting the top interior surface thereof, said liner defining a resting thickness at ambient temperature and pressure conditions and said liner being made from a material capable of being compressed to a thickness less than the resting thickness and being capable of recovering to a recovery thickness sufficient to allow said liner to maintain a positive pressure
10 against said cap and against said seal when said closure is affixed to said container.

11. The closure of claim 10 wherein said liner is made from a thermoplastic material.

15 12. The closure of claim 10 wherein said liner is made from a material selected from the group consisting of a silicone-based material, urethane, latex, rubber, thermoplastic elastomers, thermoset elastomers or a combination thereof.

13. The closure of claim 10 wherein the angle θ is less than about 20° .

14. The closure of claim 13 wherein the angle θ is about 20° .

15. The closure of claim 13 wherein the angle θ is about 10° .

16. The closure of claim 10 further comprising at least one layer of bonding material between said liner and said top interior surface.

5 17. The closure of claim 10 further comprising an essentially circular tamper-evident band depending from the skirt.

18. The closure of claim 17 wherein said tamper-evident band includes a break-away section and a means for positively engaging the collar.

10 19. The closure of claim 18 wherein said collar-engaging means are flexible finger projections.

15 20. The closure of claim 18 wherein said collar-engaging means is a continuous bead secured to said skirt interior surface.

21. The closure of claim 10 wherein said cap includes at least one slit extending a predetermined length from the top to the skirt.

20 22. A closure for maintaining pressure against a seal affixed to a container lip as a sealed container is exposed to relatively high temperature and pressure conditions, said closure comprising:

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a. a cap, having a top with an interior surface and a skirt depending from the top and defining a skirt interior surface, and having at least one thread affixed to the interior skirt surface in a spiral; and

5 b. a liner, having a resting thickness at ambient temperature and pressure conditions, said liner being made from a material capable of being compressed to a thickness less than the resting thickness and being capable of recovering to a recovery thickness in a sealing zone such that said seal is sandwiched between said liner and said container lip at a pressure sufficient to retain said seal against said lip when said sealed container is subjected to retort processing conditions.

10 23. The closure of claim 22 wherein said liner is made from a material selected from the group consisting of a silicone-based material, urethane, latex, rubber, thermoplastic elastomers, thermoset elastomers or a combination thereof.

15 24. A method for maintaining pressure against a seal affixed to a container lip as a sealed container is exposed to relatively high temperature and pressure conditions, said method comprising reversibly affixing a closure to said container such that a liner of said closure abuts a surface of said seal so as to sandwich said seal between said liner and said container lip, said liner defining a resting thickness at ambient temperature and
20 pressure conditions and said liner being made from a material capable of being compressed to a thickness less than the resting thickness and of recovering to a recovery thickness sufficient to allow said liner to maintain a positive pressure against said seal

upon exposure to elevated temperatures, elevated pressure, or a combination of elevated temperature and elevated pressure.

25. The method of claim 24 wherein said liner is made from a material
5 selected from the group consisting of a silicone-based material, urethane, latex, rubber, thermoplastic elastomers, thermoset elastomers or a combination thereof.

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